



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

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*K/A*

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/365,363 07/30/99 ROSENBERG

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WM02/0718

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EXAMINER
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TIMOTHY N TROP  
TROP PRUNER HU & MILES PC  
SUITE 100  
8554 KATY FREEWAY  
HOUSTON TX 77024

PATEL, N	
ART UNIT	PAPER NUMBER

2673

*5*

DATE MAILED:

07/18/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

*SS*

# Office Action Summary

Application No.

09/365,363

Applicant(s)

ROSENBERG ET AL.

Examiner

Nitin Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371<sup>©</sup> of this title before the invention thereof by the applicant for patent.

Claims 1-3,5-24 are rejected under 102(e) as being anticipated by Quanrud (U.S. patent No.6, 140,983).

As per claims 1,9,13, 21 Quanrud teaches a display comprising (In Abstract)  
a semiconductor substrate ( In Col.5 lines 18-27 and In Col.12 lines 1-15and In Col.11 lines 65-67 to Col.12 lines 1-15)

a liquid crystal over semiconductor pixel array formed in substrate and a memory coupled to array , memory also formed in substrate (In Col.5 lines 9-35 and In Col.11 lines 32-65);

a processor (In Fig.16 element 54 and In Col.25 lines 31-41).

A refresh circuit coupled to memory array and pixel array adapted to refresh memory array and pixel array (In Col.6 lines 18-28).

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As per claim 2,5,10,20, 22 Quanrud teaches a pixel array includes a plurality of pixels each including a memory (In Col.11 lines 32-43).

As per claim 3,23 Quanrud teaches wherein memory cells are static random access memory cells (In Col.13 lines 50-56).

As per claim 6,24 Quanrud teaches wherein pixel array forms a reflective liquid crystal spatial light modulator (In Col.12 lines 30-41).

As per claims 7,16 Quanrud teaches a memory array is formed of dynamic random access memory (In Col.2 lines-15).

As per claim 8,12 Quanrud teaches wherein pixel array is adapted to eliminate the need for a periodic pixel (In Col.6 lines 9-18).

As per claim 11, Quanrud teaches a memory includes forming a volatile memory and refreshing volatile memory and pixel array in the same refresh cycle (In Col.6 lines 18-27).

As per claims 14-15, Quanrud teaches memory array and pixel arrays are formed in the same semiconductor substrate with refresh circuit wherein substrate is a liquid crystal over substrate (In Col.5 lines 9-28 and In Col.11 lines 31-67 to Col.121-15).

As per claims 17-19, Quanrud teaches memory and pixel arrays in a liquid crystal over semiconductor substrate including storing pixel data and providing a material over pixel array (In Col.5 lines 9-34 and In Col.11 lines 32-52 and Col.12 lines 1-15).

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2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4,25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quanrud (U.S. Patent No. 6,140,983) in view of Okumura et al., (U.S. patent No. 5,945,972).

As per claim 4,25 Quanrud does not specifically teach a pixel array is coupled to digital to analog converter.

Okumara teaches a pixel array is coupled to digital to analog converter (In Col.27 lines 5-26). It would have been obvious to one of ordinary skill in the art, at the time of the invention was made, to allow Okumara's display device having D/A converter in the system of Quanrud because it would have converted digital data into analog form using D/A converter is well known in the art.

### ***Response to Arguments***

Applicant's arguments filed on 04/30/2001 have been fully considered but they are not persuasive.

Applicant's argument that prior art (Quanrud U.S. Patent No. 6,140,983) does not teach LCOS structure. examiner disagree with this limitation. Examiner would

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like to point out cited Column 11 and 12 specifically, in Col.11 lines 31-37a display matrix (liquid pixels which also include a plurality of memory is formed) and In Col.11 lines 65-67 to Col.12 lines 1-27 the display matrix is formed on a substrate having a plurality of regions where each regions includes a memory circuit with a plurality of memory cells, wherein the substrate is a semiconductor such as silicon on which the display circuits are formed by one or more methods.

Examiner also included new prior art for consideration McKnight (U.S. Patent No. 6,243,072 B1).

### **Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nitin Patel whose phone number is 703-308-7024. The examiner can normally be reached Monday - Friday 8.30 AM to 5.00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor is Bipin Shalwala at 703-305-4938. Please fax any document at Fax number 703-305-9724.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9618.

***Any response to this action should be mailed to:***

Commissioner of Patent and Trademarks  
Washington, D.C. 20231

**or faxed to :**

(703) 308-9051, (for formal communications intended for entry)

**Or:**

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(703)305-9724, for informal or draft communication, please lable

("PROPOSED" or "DRAFT")

***Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, V.A., Sixth Floor (receptionist).***

Nitin Patel  
Patent examiner  
Art Unit 2673  
March 22, 2001



**BIPIN SHALWALA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**